Public Comment to FCC
In Proceeding No. 04-151

Respectfully Submitted by
John Cooper

March 1, 2005

This letter is written to urge you as a policy maker to support a new grass roots movement only now in the process of being born among municipal leaders, by opening the 2650-3700 MHz band to unlicensed use. Mesh Networking has emerged in an act of creative technological evolution from a maturing interior Wi Fi technology, with its Hot Spots and mobile laptops. Mesh Networking has as much or more potential than Hot Spots to impact both the availability of High Speed Internet Access and the effectiveness of our economy.

Municipal wireless networks based on mesh technology are blossoming around the U.S. for a simple reason - the time is right. Until recently, there was no affordable, modular communications solution that would allow the municipalities to address long-standing problems of high-speed connectivity, public safety, infrastructure protection, or reduction in operations costs. There is now, and as more municipalities discover the benefits now available, more and more municipal projects are getting underway. This trend is a direct testimony to the potential of an economic engine that is only now warming up. There is a sense that we are at the beginning of a revolution in public sector cost reduction and efficiency with this new technology. Long have we heard how government needs to be more accountable and more effective - now that municipal and community leaders are stepping out and doing what we have urged them to do, the FCC should support them with necessary changes to spectrum policy that foster, not stifle this emerging trend.

As the innovation around Wi Fi shows, most particularly with Mesh Networking, the marketplace has proven to be a wonderful tool to drive the advancement of broadband communication, both from the access side and the product development side. A potential stumbling block is the availability of easy-to-access spectrum - so much has already been accomplished in the somewhat limited 2400 MHz unlicensed range, and so much more could be accomplished if the proposal to open up the 2650-3700 MHz band to unlicensed use is adopted.

One of the most difficult things to do in life is to change perspective on long-held paradigms. A key paradigm at issue here is that government must rely on and support big business to accomplish big, complex public policy tasks. From the beginnings of spectrum regulation, an underlying assumption was that only the big players could help accomplish big infrastructure goals, because spectrum was a rare commodity and expensive when it was auctioned off. Who else but well-heeled major corporations would have the capital necessary to compete? We must recognize that we are in the midst of profound change, and the rules are not the same as they once were.

The marketplace is speaking loudly, turning the long-held belief that spectrum is rare and expensive on its ear: we now have ample evidence that when barriers to entry are low and standardization lowers costs, investment occurs without big corporations or well-funded start ups. Fresh, uninhibited investment driven by opportunities of the future, not on preserving advantages of the past, will drive the full development that lies dormant in currently under-utilized spectrum. Any rules that close off possibilities, or that prohibit or limit the ability of multiple entrants will stymie the market and significantly cripple the development and deployment of local, open source mesh systems.

With this new paradigm, local solutions accommodate local situations, and low power is more important in many communities than high-power. The FCC should remain open to solutions that meet the needs of both the low-power and high-power supporters. It should not sacrifice the possibility of low power mesh in the 3650-3700 MHz band for the sake of high-power in the band.

Ideally, the FCC should have rules that permit both, as high power is necessary for backhaul and can be useful in point to point. But if the FCC must choose between the two, it should keep the low power option and defer implementation of high power until cognitive radio technology has been improved and implemented.

A new paradigm that values the "wisdom of the crowds" and "bottom-up emergent solutions" would avoid establishment or exclusive licensing of "first in time, first in right" site licensing, which would impede communities from deploying numerous open source solutions and experimenting to see which market solutions work, and which don't. Any parent understands this paradox: we get more control over results when we let go and provide gentle guidance that values all perspectives: a regulatory approach that values open over proprietary, and multiple development paths is inherently less risky in a dynamic environment. Ask the venture capitalists, who would never put all their eggs in a single basket. "First-in-time, first-in-right" implies scarcity and scarcity drives up prices, which will limit the access to this spectrum to the well-heeled minority elite. Such an approach would ignore the success of open source systems and the innovation and market power they bring about. For the full attainment of the potential of this spectrum, the FCC should create a fresh field and let the marketplace determine the winners and losers.

The multi-billion dollar Wi Fi industry shows the FCC that it can limit its risk with small experiments on spectrum reform and still enjoy significant upside, if it follows a few simple rules: 1) make more spectrum available to more players; 2) limit regulation of spectrum; 3) limit cost of spectrum. The IT industry has provided us with standardized manufacturing rules that drove down costs, innovators have tweaked existing models that opened up revolutionary new applications; now the FCC should do its part to make more spectrum available, then sit back and watch their garden blossom with new life. Now, more than ever, it is time to conduct prudent experiments at reform and to challenge long-held belief systems and paradigms, and to apply the new lessons we are learning as we go.